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REMARKS

On June 22, 2007, Applicants submitted an Amendment and Response to the final rejection of the claims, mailed May 15, 2007. In an Advisory Action dated July 6, 2006 the Examiner stated that the amendments submitted with the June 22, 2007 response would not be entered as they raised new issues. Applicants submit herewith a Request for an RCE and an accompanying Amendment and Reply. Applicants request that the previously non-entered amendments to the claims and the drawings submitted on June 22, 2007 be entered. In addition, applicants request entry of the further amendments to claims 16, 22 and 27 submitted herewith and consideration of the following remarks.

In the Advisory Action mailed on July 6, 2007, the Examiner noted that the amendments to the sequence of SEQ ID NO: 1 and Fig. 5 of the application submitted with the June 22nd response raised potential new issues or new matter. As applicant's noted in their response to the final Office Action, the amendments to SEQ ID NO: 1 and in Fig. 5 merely represent a correction of an obvious typographical/clerical error in the drafting of the application. More particularly, the originally submitted nucleic acid of SEQ ID NO: 1 included the designation of "r" at position 308 instead of the proper designation "t".

In support of the amendment to SEQ ID NO: 1 and Fig. 5 applicants submit herewith a Declaration under 37 CFR 1.132 of inventor Dr. Hans-Georg Ihlenfeldt. In that Declaration, Dr. Ihlenfeldt confirms that at the time the application was filed, the applicants knew the entire nucleotide and amino acid sequence of the claimed recombinant *Drosophila melanogaster* kinase and knew that the nucleotide at position 308 of the nucleic acid sequence was "t" (thymidine) and not "r". However, an apparent drafting error, that went undetected by applicants and applicants' attorneys, lead to the erroneous listing of the sequence in SEQ ID NO: 1 and Fig. 5 having an "r" designated at position 308. This error occurred without deceptive intent by applicants or their attorneys. The submitted amendments to SEQ ID NO: 1 and Fig. 5 merely correct an unintended drafting error, to now properly designate the sequence of the recombinant kinase that applicants believed to be their invention at the time the application was filed. The amendment is not believed to introduce any new matter, but as indicated in the accompanying Declaration under 37 CFR 1.132, merely corrects an unintentional obvious error in the designated sequence. Accordingly, applicants respectfully request entry of the amendments submitted with the June 22, 2007 response to the final Office Action as well as the amendments submitted herewith.

Claims 15-20, 22-27 and 29 stand rejected as failing to comply with the written description requirement of 35 USC § 112, first paragraph. Applicants respectfully traverse this rejection. However in an effort to advance the prosecution of the present application, applicants amended the claims in their response to the final Office Action mailed on June 22, 2007 to obviate this rejection. More particularly, independent claims 15 and 22 have been amended to incorporate the limitations of original claims 21 and 28, respectively. This amendment specifies that the kinase is encoded by the nucleic acid sequence of SEQ ID NO: 1. The Examiner indicated in the final Office Action that claims 21 and 28 were objected simply because they depend from a rejected claim. Accordingly, the amendment of claims 15 and 22 is believed to place claims 15-20 and claims 22-26 in condition for allowance.

The Examiner also previously objected to claim 27 as being broad enough to encompass any kinase having as little as two consecutive amino acids of a polypeptide encoded by SEQ ID NO: 1. Applicants have amended claim 27 to state that the kinase comprises an amino acid identical to the entire amino acid sequence encoded by the sequence of SEQ ID NO: 1. Accordingly, the scope of claim 27 as amended is limited to the specific protein whose amino acid sequence is disclosed in the present application. Therefore, claim 27 as amended is believed to fully comply with the written description requirement of 35

USC § 112, first paragraph, and applicants respectfully request the withdrawal of that rejection.

Claims 15-20, 22-27 and 29 stand rejected under 35 USC § 112, first paragraph for lack of enablement. Applicants respectfully traverse this rejection. However in an effort to advance the prosecution of the present application, applicants amended the claims to obviate this rejection. More particularly, independent claims 15 and 22 have been amended to incorporate the limitations of previously pending claims 21 and 28, respectively. This amendment specifies that the kinase is encoded by the nucleic acid sequence of SEQ ID NO: 1. The Examiner indicated in the final Office Action that claims 21 and 28 were objected simply because they depend from a rejected claim. Accordingly, the amendment of claims 15 and 22 is believed to place claims 15-20 and claims 22-26 in condition for allowance.

Claim 27 has been amended to place that claim in independent form and to incorporate the limitations of previous base claim 22. The Examiner previously objected to the claim as being broad enough to encompass any kinase having as little as two consecutive amino acids of a polypeptide encoded by SEQ ID NO: 1. Accordingly, applicants have further amended claim 27 to state that the kinase comprises an amino acid identical to the entire amino acid sequence encoded by the sequence of SEQ ID NO: 1. Therefore, the scope of claim 27 is limited to the specific protein whose amino acid sequence is disclosed in the present application. Claim 27 as amended is believed to be fully enabled by the present specification in accordance with 35 USC § 112, first paragraph, and applicants respectfully request the withdrawal of that rejection.

Claim 29 has been canceled rendering the objections to that claim under 35 USC § 112, first paragraph moot.

Claims 15-20, 22-27 and 29 stand rejected under 35 USC § 102 as being anticipated by Munch-Petersen. Applicants respectfully traverse this rejection. However in an effort to advance the prosecution of the present application, applicants have amended the claims to obviate this rejection. More particularly, independent claims 15 and 22 have been amended to incorporate the limitations of claims 21 and 28, respectively. This amendment specifies that the kinase is encoded by the nucleic acid sequence of SEQ ID NO: 1. The Examiner indicated in the final Office Action that claims 21 and 28 were objected simply because they depend from a rejected claim. Accordingly, the amendment of claims 15 and 22 is believed to place claims 15-20 and claims 22-26 in condition for allowance.

Claim 27 has been amended to place that claim in independent form and to incorporate the limitations of previous base claim 22. The Examiner previously objected to the claim as being broad enough to encompass any kinase having as little as two consecutive amino acids of a polypeptide encoded by SEQ ID NO: 1. Accordingly, applicants have further amended claim 27 to state that the kinase comprises an amino acid identical to the entire amino acid sequence encoded by the sequence of SEQ ID NO: 1. Therefore, the scope of claim 27 is limited to the specific protein whose amino acid sequence is disclosed in the present application. Applicants have demonstrated that this particular recombinant protein has properties distinct from the native purified protein disclosed in Munch-Petersen. Therefore, the kinase of claim 27 is not anticipated by the protein disclosed in Munch-Petersen, and applicants respectfully request the withdrawal of the rejection of claim 27 as being anticipated.

Claim 29 has been canceled rendering the objection to that claim under 35 USC § 102 moot.

In applicants' response mailed June 22, 2006, claims 16, 22 and 27 were amended to clarify that the activity of the recombinant kinase is superior to that of the purified natural kinase, and that the referenced superior "activity" related to kinase activity (e.g., the ability of the kinase to phosphorylate deoxynucleosides). In the Advisory Action dated July 6, 2007, the Examiner made note of our amendments to claims 16, 22 and 27 and noted that the term "deoxynucleosides" encompasses a broad array of compounds such that the claim may not comply with the requirements of 35 USC 112. In response, applicants respectfully submit that one of ordinary skill in the art readily understands the standard assays used to measure kinase activity, as detailed in the reference cited in Example 6 of the specification (Laemmli U.K. (1970) Nature 227: pp. 555-557). To further clarify the scope of the claim, applicants have amended claims 16, 22 and 27 to state that the deoxynucleoside is a natural deoxynucleoside and that the kinase retains over 90% of its initial activity even after incubation in a 50 mM Tris pH 7.5 and 2.5 mM $MgCl_2$ solution at 37°C for 30 minutes. The amendments to claims 16, 22 and 27 are believed to fully address the Examiner's concerns with regards to compliance with 35 USC 112.

The foregoing claim amendments and remarks are believed to fully respond to the Examiner's rejections and the claims are believed to be in condition for allowance. Applicants respectfully request allowance of the claims, and passage of the application to issuance. If any further discussion of this matter would speed prosecution of this application, the Examiner is invited to call the undersigned at (434) 220-2866.

Respectfully submitted,

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